

REMARKS

Applicants respectfully acknowledge receipt of the Office Action mailed December 12, 2005.

In the Office Action, the Examiner: (1) rejected claims 1, 10, and 13 under 35 U.S.C. § 103(a) as being unpatentable over *Arndt et al.* (U.S. Patent No. 6,469,130) in view of *Hori* (U.S. Patent No. 6,469,398); (2) rejected claims 11 and 12 under 35 U.S.C. § 103(a) as being unpatentable over *Arndt* in view of *Hori*, and further in view of *Hurt et al.* (U.S. Pub. No. 2003/0007749); and (3) rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over *Arndt* in view of *Hori*, and further in view of *Kwon et al.* (U.S. Patent No. 6,518,660).

By this Amendment, Applicants amend claim 1 and cancel claim 14 without prejudice or disclaimer. Upon entry of this Amendment, claims 1 and 10-13 will remain pending. Of these claims, claim 1 is independent. Claims 2-9 were previously canceled without prejudice or disclaimer in the "Amendment" filed March 17, 2005.

The originally-filed specification, claims, abstract, and drawings fully support the amendments to claim 1. No new matter has been introduced.

Applicants traverse the rejections above and respectfully request reconsideration for at least the reasons that follow.

I. 35 U.S.C. § 103(a) REJECTION

Claims 1, 10, and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Arndt* in view of *Hori*. Applicants respectfully disagree with the Examiner's arguments and conclusions and submit that independent claim 1 patentably

distinguishes over *Arndt*, *Hori*, and the other art of record, at least for the reasons described below.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must "be found in the prior art, and not be based on applicant's disclosure." See M.P.E.P. §2143, 8th ed., February 2003.

Arndt discloses a semiconductor component including a semiconductor chip 1 and external connections 11 and 12, which project outside a parallelepipedal encapsulation 3. (*Arndt*, col. 2, ll. 46-50 and Figs. 1A-1C). As admitted by the Examiner, "Arndt does not show that the soldering terminals (11 and 12) do not extend beyond an outline of the encapsulation material because the terminals are bent inward toward the encapsulation material." (*Office Action*, p. 2, line 25 - p. 3, line 1). Thus, in order to cure the deficiencies of *Arndt*, the Examiner relies on *Hori* for its asserted disclosure of "soldering terminals (11 and 12) that do not extend beyond an outline of the encapsulation material (5)." (*Id.* at p. 3, ll. 2-4).

However, as further admitted by the Examiner, "Arndt and Hori show all of the elements of the claims except the grooves and wings in the base material to enhance anchorage." (*Office Action*, p. 4, ll. 14-15). To cure the deficiencies of *Arndt* and *Hori*,

the Examiner relies on *Kwon* and alleges that *Kwon* teaches “the grooves and wings in the base material to enhance anchorage...(col. 3, lines 60-65).” (*Id.* at p. 4, ll. 14-16).

Kwon discloses a semiconductor package 200 with an integrated circuit chip 120 bonded on an upper surface 112 of a substrate 110. (*Kwon*, col. 2, ll. 59-61). A lid 140 is attached to the upper surface 112 of the substrate 110, thereby covering the chip 120. (*Id.* at col. 2, line 66 - col. 3, line 1). External connection terminals 130 on a lower surface 114 of the substrate 110 are electrically connected to substrate pads 116. (*Id.* at col. 3, ll. 1-4). Additionally, the lid 140 includes four ground projections 144, wherein each of the ground projections 144 may have a groove 146 where the ground projections 144 meet ground patterns 118. (*Id.* at col. 3, ll. 60-65). *Kwon*, however, fails to teach or suggest, at least, wherein an electrically conductive frame, which forms a base for an assembly, is crafted with a series of grooves and wings to assist in anchoring the frame in a resin material in order to minimize an occurrence of delamination between the frame and the resin, as required by Applicants’ claim 1 (emphases added).

Applicants note that lid 140 can not be interpreted as an electrically conductive frame, as inferred by the Examiner, because the lid 140 does not form a base for the semiconductor package 200; the lid 140 merely covers the circuit chip 120. Rather, the substrate 110 forms the base of the semiconductor package, as it supports the circuit chip 120 and includes external connection terminals 130 formed on the lower surface 114 thereof. The substrate 110, however, is not an electrically conductive frame, as it is either a printed circuit board or a ceramic board. (*Id.* at col. 2, ll. 65-66). Additionally,

the substrate 110 does not include any grooves and wings to anchor itself in a resin material.

Accordingly, with respect to independent claim 1, *Arndt, Hori*, and *Kwon* fail to teach or suggest the claimed combination, including, *inter alia*:

“a series of grooves and wings crafted in said electrically conductive frame to enhance anchorage and minimize an occurrence of de-lamination” (emphasis added).

The Examiner has therefore not met at least one of the essential criteria for establishing a *prima facie* case of obviousness, wherein “the prior art reference (or references when combined) must teach or suggest all the claim limitations.” See M.P.E.P. §§ 2142, 2143, and 2143.03. Accordingly, independent claim 1 is patentable over *Arndt, Hori*, and *Kwon*. Applicants therefore request that the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn and claim 1 be allowed.

Moreover, claims 10-13 are in condition for allowance at least due to their direct dependence from independent claim 1. In addition, at least some of the dependent claims may recite unique combinations that are neither disclosed nor suggested by the cited art, and therefore some also are separately patentable.

II. CONCLUSION

Applicants respectfully submit that independent claim 1 is in condition for allowance. In addition, claims 10-13 are in condition for allowance at least due to their direct dependence from independent claim 1.

The Office Action contains characterizations of the claims and the related art with which Applicants do not necessarily agree. Unless expressly noted otherwise, Applicants decline to subscribe to any statement or characterization in the Office Action.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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